

Claims

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1. A prefabricated underlay material for location between an upper surface of a load-bearing floor and a parquet or other continuous surface material, which underlay material comprises:

– a substantially flexible first sheet material having a first surface with a surface area;
– dampening projections formed of porous resilient material on at least said first surface of the first sheet material, distributed along said first surface and having a total projection area less than said area of the first sheet material, wherein:

– said first surface extends continuously and flat beneath the dampening projections and in the area between them; and

– said dampening projections formed of porous resilient material:

- are made of a foamed polymer or polymer mixture bonded to said flat first surface by effect of its/their material properties at the time for manufacture; and

- are principally straight continuous or intermittently continuous strips located with intervals, or substantially undulating continuous or intermittently continuous strips located with intervals.

2. An underlay material of Claim 1, wherein the flexible first sheet material is:

– a prefabricated impervious polymer membrane, whereupon it is a moisture barrier as such, or

– a prefabricated paper or cardboard, or

– a prefabricated laminate which comprises a prefabricated impervious polymer membrane, forming a moisture barrier, and one or more layers of paper and/or cardboard and/or additional polymer membrane(s).

3. An underlay material of Claim 2, wherein the polymer membrane(s), which creates a moisture barrier, is polyethylene, some other polyolefin, a polyester such as polyethylene terephthalate, polypropylene, forming an impervious membrane or surface coating.

4. An underlay material of Claim 2, wherein said polymer membrane forming a moisture barrier is located on that side of the laminate which faces towards the dampening projections, forming said first surface.

5. An underlay material of Claim 1, wherein the porous, resilient and foamed polymer(s) which forms the dampening projections is polyethylene, atactic polypro-

pylene, some other polyolefin, polyether, ethyl vinyl acetate, polyamide, polyurethane, silicon rubber, some biopolymer or a mixture of these.

5 6. An underlay material of Claim 5, wherein the polymer forming the impervious polymer membrane(s), which acts as a moisture barrier, has a melting point or melting range, which is higher than a melting point of the porous and resilient polymer(s) forming the dampening projections.

10 7. An underlay material of Claim 5, wherein the foamed polymer(s) forming dampening projections has as additive(s) waxes, oils, terpene resins, derivatives of natural resins, phenyl resins, coumarone resins or some combination of these.

15 8. An underlay material of Claim 5, wherein the foamed polymer(s) forming dampening projections is chosen from among the mentioned plastics and mixtures of plastics so as to have a creep deformation of less than 10 % under a load of 500 kPa applied for 24 hours.

20 9. An underlay material of Claim 5, wherein the polymer(s) forming dampening projections has a modulus of elasticity in its unfoamed state between 0.002 - 4 GPa.

10. An underlay material of Claim 5, wherein the polymer(s) forming dampening projections has porosity between 40 - 80 % by volume.

25 11. An underlay material of Claim 1, wherein the dampening projections have total projection areas, which together are 5-40 % of the total area of the sheet material so that the loading of the dampening material is in the elastic region.

30 12. An underlay material of Claim 1, further comprising a substantially flexible second sheet material having a third surface to which said porous polymer(s) forming the dampening projections is also bonded by effect of its/their material properties at the time of manufacture, and which second sheet material is located on the opposite side of the dampening projections relative to the first sheet material.

35 13. An underlay material of Claim 12, wherein said second sheet material is a moisture-permeable material.

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14. An underlay material of Claim 1, wherein the dampening projections have widths and the thicknesses, which are in the range 1 mm - 10 mm, and intervals therebetween, which are at least equal to said widths.

5 15. An underlay material of Claim 1, wherein the dampening projections have lengths of at least 2 mm in the direction of the strips.

16. An underlay material of Claim 1, wherein said first surface of the first sheet material is glueless.

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17. An underlay material of Claim 12, wherein said third surface of second sheet material is glueless.

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18. An underlay material of Claim 1, wherein said foamed polymer or polymer mixture for the dampening projections has sticky melt adhering properties when substantially in molten state, and non-sticky, non-adhering properties in temperatures below its melting point or melting range.

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19. A prefabricated underlay material for location between an upper surface of a load-bearing floor and a parquet or other continuous surface material, which underlay material comprises:

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– a substantially flexible first sheet material having a first surface with a surface area;
– dampening projections formed of porous resilient material on at least said first surface of the first sheet material, distributed along said first surface and having a total projection area less than said area of the first sheet material, wherein:

– said first surface extends continuously beneath the dampening projections; and
– said dampening projections formed of porous resilient material:

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- are a foamed polymer or polymer mixture bonded to said first surface without glue through preliminary melt adhering; and
- are continuous or intermittently continuous strips located with intervals.

20. An underlay material of Claim 19, wherein the flexible first sheet material is:

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– a prefabricated impervious polymer membrane, or
– a prefabricated paper or cardboard, or
– a prefabricated laminate which comprises a prefabricated impervious polymer membrane and one or more layers of paper and/or cardboard and/or additional polymer membrane(s).

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21. An underlay material of Claim 19, wherein the porous, resilient and foamed polymer(s) which forms the dampening projections is substantially polyethylene, atactic polypropylene, some other polyolefin, polyether, ethyl vinyl acetate, polyamide, polyurethane, silicon rubber, some biopolymer or mixture of these, with optional additive(s).

22. An underlay material of Claim 19, wherein the polymer forming the impervious polymer membrane, which acts as a moisture barrier, has a melting point or melting range, which is higher than a melting point of the porous and resilient polymer(s) forming the dampening projections.

23. An underlay material of Claim 19, wherein the foamed polymer(s) forming dampening projections is chosen from among the mentioned plastics and mixtures of plastics so as to have a creep deformation of less than 10 % under a load of 500 kPa applied for 24 hours.

24. An underlay material of Claim 19, wherein the polymer(s) forming dampening projections has porosity between 40 - 80 % by volume.

25. An underlay material of Claim 19, wherein the dampening projections have total projection areas, which together are 5-40 % of the total area of the sheet material so that the loading of the dampening material is in the elastic region.

26. An underlay material of Claim 19, further comprising a substantially flexible second sheet material having a third surface to which said porous polymer(s) forming the dampening projections is also bonded by effect of its/their material properties at the time of manufacture, and which second sheet material is located on the opposite side of the dampening projections relative to the first sheet material.

27. A method for manufacture of an underlay material for location under a parquet or other continuous surface material, in which method dampening projections formed of porous resilient material are arranged located in a distributed configuration on at least one surface of an substantially flexible sheet material, the total projection area of said dampening projections being less than the area of the sheet material, the method comprising the steps:

- providing a prefabricated polymer film, or a laminate furnished with at least one polymer film, or a paper or a cardboard as a first sheet material;
- said first sheet material is moved with its first surface exposed;

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- a foamed or foaming polymer or polymer mixture in molten state is extruded onto said first surface at extrusion points having intervals therebetween, said intervals being perpendicular to a direction of said motion of the first sheet material;
- the foamed or foaming molten polymer or polymer mixture is allowed to bond fast to the first surface of said sheet material;
- the foamed polymer or polymer mixture is allowed to set to a solid state thereby forming said dampening projections.

28. A method of Claim 27, wherein the foaming of said molten polymer or polymer mixture is performed:

- by air, nitrogen gas or other gas or mixture of gases, which is fed into the molten polymer(s) to be foamed while simultaneously mixing prior to said extrusion; or
- by a foaming chemical or combination of chemicals, such as water or carboxylic acid or other chemical, which is mixed with the molten polymer(s) to be foamed prior to extrusion.

29. A method of Claim 27, further comprising the steps:

- the extrusion points are moved in a direction perpendicular to the direction of said motion of the first sheet material; and/or
- said extrusion is allowed to be continuous, or it is interrupted at predetermined time intervals for a certain periods of time.

30. A method of Claim 27, further comprising the steps:

- a substantially flexible second sheet material having a third surface is fed parallel to the direction of motion of said first sheet material and against said foamed or foaming molten polymer(s) extruded for providing said dampening projections; and
- said polymer(s) in a molten state is allowed to bond fast also to the third surface of the second sheet material, which is opposite, said first surface of the first sheet material.

31. A method of Claim 29, further comprising the steps:

- a substantially flexible second sheet material having a third surface is fed parallel to the direction of motion of said first sheet material and against said foamed or foaming molten polymer(s) extruded for providing said dampening projections; and
- said polymer(s) in a molten state is allowed to bond fast also to the third surface of the second sheet material, which is opposite, said first surface of the first sheet material.

32. A method of Claim 27, further comprising a step, in which the finished underlay material is wound into a roll without protective papers or protective films between the layers of the roll, for storage and transport to the site of use.

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